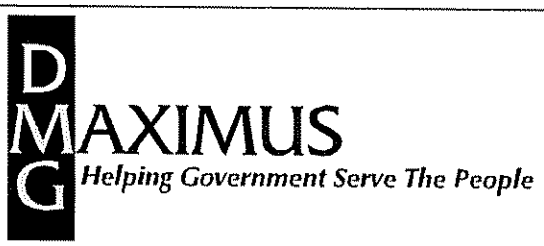
CITY OF MORGAN HILL (CA)

FIRE AND EMERGENCY MEDICAL SERVICES MASTER PLAN UPDATE



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Executive Summary

This Master Plan was conducted by examining the current Fire Suppression and Emergency Medical System in place within the City of Morgan Hill. Specific performance measures were identified and current service levels were defined. A community based Master Plan Task Force reviewed the progress of the plan on an almost monthly basis.

With the assistance of this community wide effort, ideal performance goals were identified that are based upon contemporary philosophies of fire protection and EMS delivery, current service levels when compared to degree of community satisfaction, and the reasonably projected impacts of growth and development within and around the City of Morgan Hill.

Overall System Performance Goals

The following goals are established for the Morgan Hill Fire and Emergency Medical Services Delivery System:

Response Based Performance:

RB-1: Provide a total travel time of 5-minutes and a Total Response Time of 7 minutes to 90% of all emergency responses.[1]

RB-2: Provide a minimum of 4-people on the scene of interior structure fires within a 8 minute travel time 80% of the time and within 10 minutes 95% of the time.

RB-3: Provide sufficient staffing and pumping capacity to meet the theoretical fire flow of a structure fire within an average response time of 15 minutes.

[1] Fire Department "Response Time" is actually comprised of several time segments. "Travel Time" reflects only that segment which is defined as the time from initial apparatus movement to arrival at scene. Not included are segments such as "Dispatch Processing Time" that can add 2 or more minutes to the overall "Response Time."

System Based Performance

Fire Suppression Operations

SB-1: Contain Fire to the Room or area of involvement upon arrival of first suppression crews 90% of the time.

SB-2: Limit the number of firefighter injuries to less than .47/100 calls for service.

Fire Prevention/Loss Management

SB-3: Limit the number of Commercial Fires per year to 5/1,000 Inspectable Occupancies

Emergency Medical Services

SB-4: Obtain Return of Spontaneous Circulation in 8% of non-traumatic, cardiac arrest patients experienced in the field.

SB-5: 90% of all applicable Trauma Patients arrive at an appropriate Trauma Center within 50 minutes of dispatch.

SB-6: 65% of all applicable EMS calls receive appropriate by-stander intervention prior to arrival of public safety personnel.

Customer Service and Satisfaction

SB-7: Receive 95% Good or Excellent rating in Responses to solicited Customer feedback.

Several service delivery designs were contemplated and modeled utilizing digital software to gauge the impact of staffing levels and station configurations on response time performance and capability. Delivery of ancillary services including communications, fire prevention, community involvement and hazardous materials management was also considered and integrated into the plan.

A comparison was then made of the various models with respect to the system performance objectives previously identified. An analysis of these scenarios was conducted and 3 System Options were identified and presented to City staff and the task

force. The following represents a summary of the Option recommended by the Task Force for policy adoption by the City:

Master Plan Summary – Recommended Option "A"

Priority	Description
1	Cooperative Agreement for integrated dispatch and unit status information for South County units
1	Cooperative Agreement for Battalion Chief level operational supervision or incident command
1	Contract for supplemental staffing at South County Station bringing minimum staffing to 3-people/day
2	Construction of new "center city" fire station *(1-Time Capital Expense)*
2	Additional staffing of 3 FTE (9 people) to staff center city facility.
2	Amend sprinkler ordinance bringing minimum residential square footage to 3,000 square feet or greater
2	Re-negotiate secondary ALS Contract for services. Include ALS services within standard services provided.
3	Research and develop potential of cable system and related technology to provide interactive alarms and safety interfaces between Public Safety agencies and homes.
3	Implement Citizen Self-Help/Educational program enhancements.
3	Guarantee Presence of Truck/Quint Resource at Station 12. Modify contract with enhanced amortization expense.

Financial Impacts of Recommended Option:

The current dollar cost estimates, along with estimated year of occurrence, are presented in the following table:

Estimated Current Dollar Costs of Implementation – Recommended Option "A"

Projected Date	Description	Estimated Cost Impact[2]
FY 2001 – 2002	Cooperative Agreement for integrated dispatch and unit status information for South County units	
FY 2001 – 2002	Cooperative Agreement for Battalion Chief level operational supervision or incident command	
FY 2002 –2003	Contract for supplemental staffing at South County Station bringing minimum staffing to 3-people/day	$ 270,000
FY 2002 – 2003	Construction of new "center city" fire station	$ 2,500,000 (Capital, does not include land acquisition costs)
FY 2002 – 2003	Amend sprinkler ordinance bringing minimum residential square footage to 3,000 square feet or greater	
FY 2002 – 2003	Implement Citizen Self-Help/Educational program enhancements.	$ 79,000
FY 2002 – 2003	Re-negotiate secondary ALS Contract for services. Include ALS services within standard services provided.	($ 100,000)
FY 2003 –2004	Additional staffing of 3 FTE (9 people) to staff center city facility.	$ 1,107,000
FY 2003 - 2004	Research and develop potential of cable system and related technology to provide interactive alarms and safety interfaces between Public Safety agencies and homes.	$ 79,000
FY 2004 - 2005	Replacement of Engine 12 w/ Truck/Quint. Increased Amortization Expense	$ 46,600
Total Operational (annual/Recurring Costs)		$1,481,600
Total Capital (One-Time Costs)		$2,500,000

[2] Current Dollars

TASK FORCE RECOMMENDATIONS

The Fire and EMS Services Master Plan Task Force has reached consensus on the following recommendations:

A. The City of Morgan Hill should adopt the performance goals identified within this report as the performance goals for Fire and EMS services within the City.

B. The City should adopt "Option A" as presented within this report and summarized above, as the mechanism for achieving the performance goals identified.

C. The various programs and plans contained in "Option A" should be adopted as part of any new service contract and several of the issues should be part of an attempted re-negotiation of existing service contract(s) with the Santa Clara County Fire Department or competitive bid process for service provision.

D. The City should understand that some of the cost estimates, specifically those related to the Citizen Self Help approaches to community safety, state only the start-up costs estimated to provide for a more thorough evaluation of the needs and strategies involved in implementing such an approach. The Task Force believes that the ultimate operational costs of such efforts are not adequately reflected in the costs estimates in this plan.

E. The City should continue to collect Fire Services Development Impact fees for construction of needed new facilities and re-investment in fire station ownership. It is conceivable that during the planning horizon a fourth, city-owned facility may become necessary to maintain service levels.

Fire and Emergency Medical Services Master Plan and Implementation Steps

Methodology

This Master Plan was conducted by examining the current Fire Suppression and Emergency Medical System in place within the City of Morgan Hill. Specific performance measures were identified and current service levels were defined. A community based Master Plan Task Force reviewed the progress of the plan on an almost monthly basis.

With the assistance of this community wide effort, ideal performance goals were identified that are based upon contemporary philosophies of fire protection and EMS delivery, current service levels when compared to degree of community satisfaction, and the reasonably projected impacts of growth and development within and around the City of Morgan Hill.

Several service delivery designs were contemplated and modeled utilizing digital software to gauge the impact of staffing levels and station configurations on response time performance and capability. Delivery of ancillary services including communications, fire prevention, community involvement and hazardous materials management was also considered and integrated into the plan.

A comparison was then made of the various models with respect to the system performance objectives previously identified. From this comparison likely scenarios were defined that would approximate service levels consistent with the performance objectives. An analysis of these scenarios was conducted and 3 System Options were identified and presented to City staff and the task force.

The Master Plan elements that gained consensus of the Task Force and which, cumulatively, meet the performance objectives identified serve as the Master Plan for Fire Suppression and Emergency Medical Services presented here.

Overall System Performance Goals

The following goals are established for the Morgan Hill Fire and Emergency Medical Services Delivery System:

Response Based Performance:

RB-1: Provide a total travel time of 5-minutes and a Total Response Time of 7 minutes to 90% of all emergency responses.[3]

RB-2: Provide a minimum of 4-people on the scene of interior structure fires within a 8 minute travel time 80% of the time and within 10 minutes 95% of the time.

RB-3: Provide sufficient staffing and pumping capacity to meet the theoretical fire flow of a structure fire within an average response time of 15 minutes.

System Based Performance

Fire Suppression Operations

SB-1: Contain Fire to the Room or area of involvement upon arrival of first suppression crews 90% of the time.

SB-2: Limit the number of firefighter injuries to less than .47/100 calls for service.

Fire Prevention/Loss Management

SB-3: Limit the number of Commercial Fires per year to 5/1,000 Inspectable Occupancies

Emergency Medical Services

SB-4: Obtain Return of Spontaneous Circulation in 8% of non-traumatic, cardiac arrest patients experienced in the field.

[3] Fire Department "Response Time" is actually comprised of several time segments. "Travel Time" reflects only that segment which is defined as the time from initial apparatus movement to arrival at scene. Not included are segments such as "Dispatch Processing Time" that can add 2 or more minutes to the overall "Response Time."

SB-5: 90% of all applicable Trauma Patients arrive at an appropriate Trauma Center within 50 minutes of dispatch.

SB-6: 65% of all applicable EMS calls receive appropriate by-stander intervention prior to arrival of public safety personnel.

Customer Service and Satisfaction

SB-7: Receive 95% Good or Excellent rating in Responses to solicited Customer feedback.

A well defined program of Continuous Quality Improvement should be adopted for the system as well. Critical components of this system should include:

1. Statistical Process Control to identified system variations and management priorities.

2. Peer Review Process Analysis

3. Targeted audits of system components including code construction and enforcement application, public education efforts, data collection and Management Information Systems, and tasking distribution within the system.

4. Incident Review and Analysis

Master Plan Implementation Strategies and Impacts

The table below summarizes the specific implementation strategies necessary for achieving the performance goals outlined in the prior section.

This Plan (Option "A") does not include enhancements that may be mandated by standards under consideration and contention at the writing of this report. Plan Option "B" is summarized on the following pages to outline the impacts on staffing costs and strategies if such standards as NFPA 1710 are adopted and implemented in the City. It is important to note however, that Option "A" presented here, meets the criteria of performance measurement outlined and identified through the public input process.

Exhibit 1
Master Plan Summary – Option A

Priority	Description
1	Cooperative Agreement for integrated dispatch and unit status information for South County units
1	Cooperative Agreement for Battalion Chief level operational supervision or incident command
1	Contract for supplemental staffing at South County Station bringing minimum staffing to 3-people/day
2	Construction of new "center city" fire station
2	Additional staffing of 3 FTE (9 people) to staff center city facility.
2	Amend sprinkler ordinance bringing minimum residential square footage to 3,000 square feet or greater
2	Re-negotiate secondary ALS Contract for services. Include ALS services within standard services provided.
3	Research and develop potential of cable system and related technology to provide interactive alarms and safety interfaces between Public Safety agencies and homes.
3	Implement Citizen Self-Help/Educational program enhancements.
3	Guarantee Presence of Truck/Quint Resource at Station 12. Modify contract with enhanced amortization expense.

Financial Impacts of "Option A"

The current dollar cost estimates, along with estimated year of occurrence, are presented in the following table:

Estimated Current Dollar Costs of Implementation –Option A

Projected Date	Description	Estimated Cost Impact[4]
FY 2001 – 2002	Cooperative Agreement for integrated dispatch and unit status information for South County units	
FY 2001 – 2002	Cooperative Agreement for Battalion Chief level operational supervision or incident command	
FY 2002 –2003	Contract for supplemental staffing at South County Station bringing minimum staffing to 3-people/day	$ 270,000
FY 2002 – 2003	Construction of new "center city" fire station	$ 2,500,000 (Capital, does not include land acquisition costs)
FY 2002 – 2003	Amend sprinkler ordinance bringing minimum residential square footage to 3,000 square feet or greater	
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FY 2002 – 2003	Eliminate secondary ALS Contract for services. Include ALS services within standard services provided.	($ 100,000)
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FY 2003 - 2004	Research and develop potential of cable system and related technology to provide interactive alarms and safety interfaces between Public Safety agencies and homes.	$ 79,000
FY 2004 - 2005	Replacement of Engine 12 w/ Truck/Quint. Increased Amortization Expense	$ 46,600
Total Operational		$1,481,600

[4] Current Dollars

(On-going Operational Costs)		
Total Capital *(1-Time Expense)*		$2,500,000

The table entitled "Cost Structure of Master Plan Implementation – Option A" found in Appendix "B" summarizes the costs and provides a comparison to baseline funding.

Cross Reference of Planning Objectives to Master Plan Implementation Steps

The table below provides a matrix for comparison of the planning considerations of the planning process and the implementation strategies that are intended to address them specifically:

Exhibit

Comparison of Performance Objectives to System Enhancements

	RB-1	RB-2	RB-3	SB-1	SB-2	SB-3	SB-4	SB-5	SB-6	SB-7		
Cooperative Agreement for integrated dispatch and unit status information for South County units	•	•	•	•			•	•		•		
Cooperative Agreement for Battalion Chief level operational supervision or incident command			•	•	•							
Contract for supplemental staffing at South County Station bringing minimum staffing to 3-people/day		•	•	•	•		•	•				

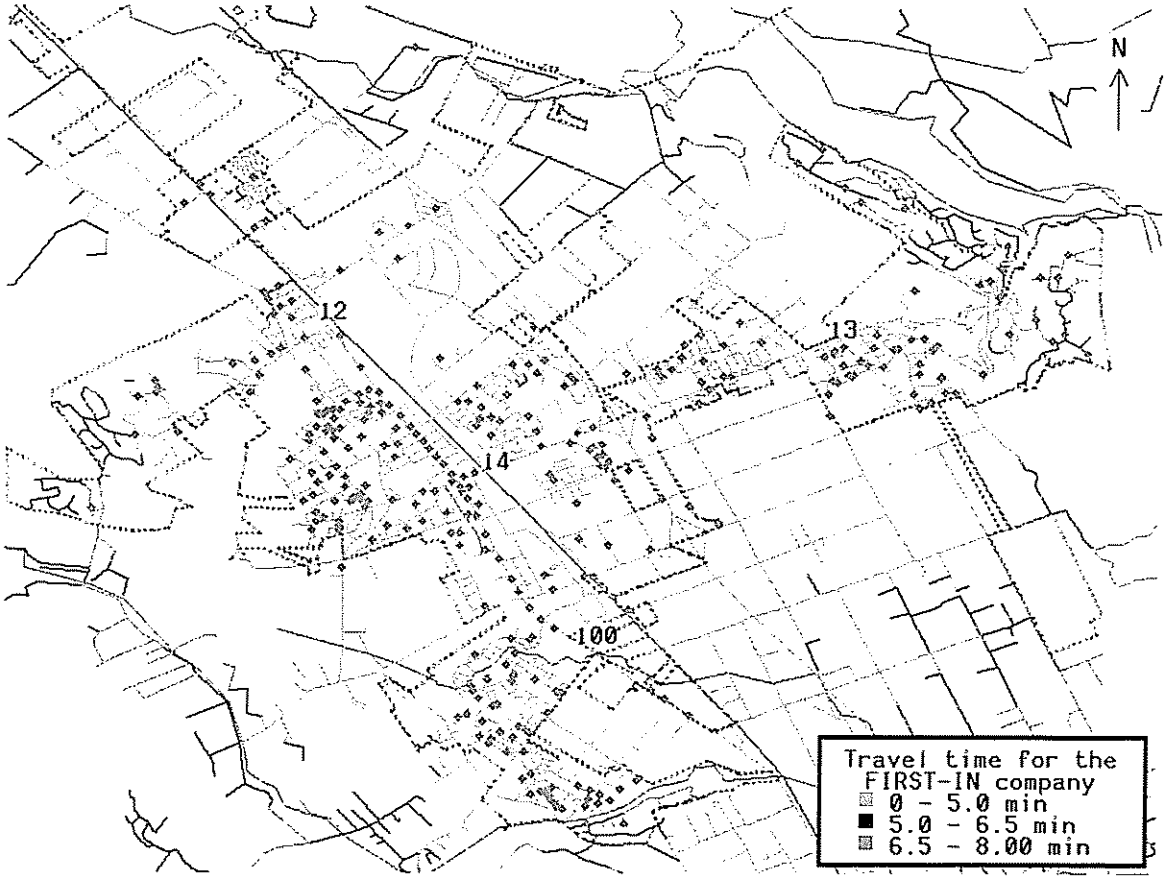
Amend sprinkler ordinance bringing minimum residential square footage to 3,000 square feet or greater			•	•	•							
Re-negotiate secondary ALS Contract for services. Include ALS services within standard services provided.												
Research and develop potential of cable system and related technology to provide interactive alarms and safety interfaces between Public Safety agencies and homes.	•			•			•		•			
Implement Citizen Self-				•		•	•	•	•	•		

Help/Educational program enhancements.												
Construction of new "center city" fire station	•	•	•	•			•	•				
Additional staffing of 3 FTE (9 people) to staff center city facility.	•	•	•	•			•	•				
Replacement/Acquisition of Truck Company or Quint at Station 12.	•	•	•									

RB-1: Provide a total travel time of 5-minutes and a Total Response Time of 7 minutes to 90% of all emergency responses.
RB-2: Provide a minimum of 4-people on the scene of interior structure fires within 8 minutes travel time 80% of the time and within 10 minutes 95% of the time.
RB-3: Provide sufficient staffing and pumping capacity to meet the theoretical fire flow of a structure fire within an average response time of 15 minutes.
SB-1: Contain Fire to the Room or area of origin 90% of the time.
SB-2: Limit the number of firefighter injuries to less than .47/100 calls for service.
SB-3: Limit the number of Commercial Fires per year to 5/1,000 Inspectable Occupancies
SB-4: Obtain Return of Spontaneous Circulation in 8% of non-traumatic, cardiac arrest patients experienced in the field.
SB-5: 90% of all applicable Trauma Patients arrive at a Level II Trauma Center within 50 minutes of dispatch.
SB-6: 65% of all applicable EMS calls receive appropriate by-stander intervention prior to arrival of public safety personnel.
SB-7: Receive 95% Good or Excellent rating in Responses to solicited Customer feedback.

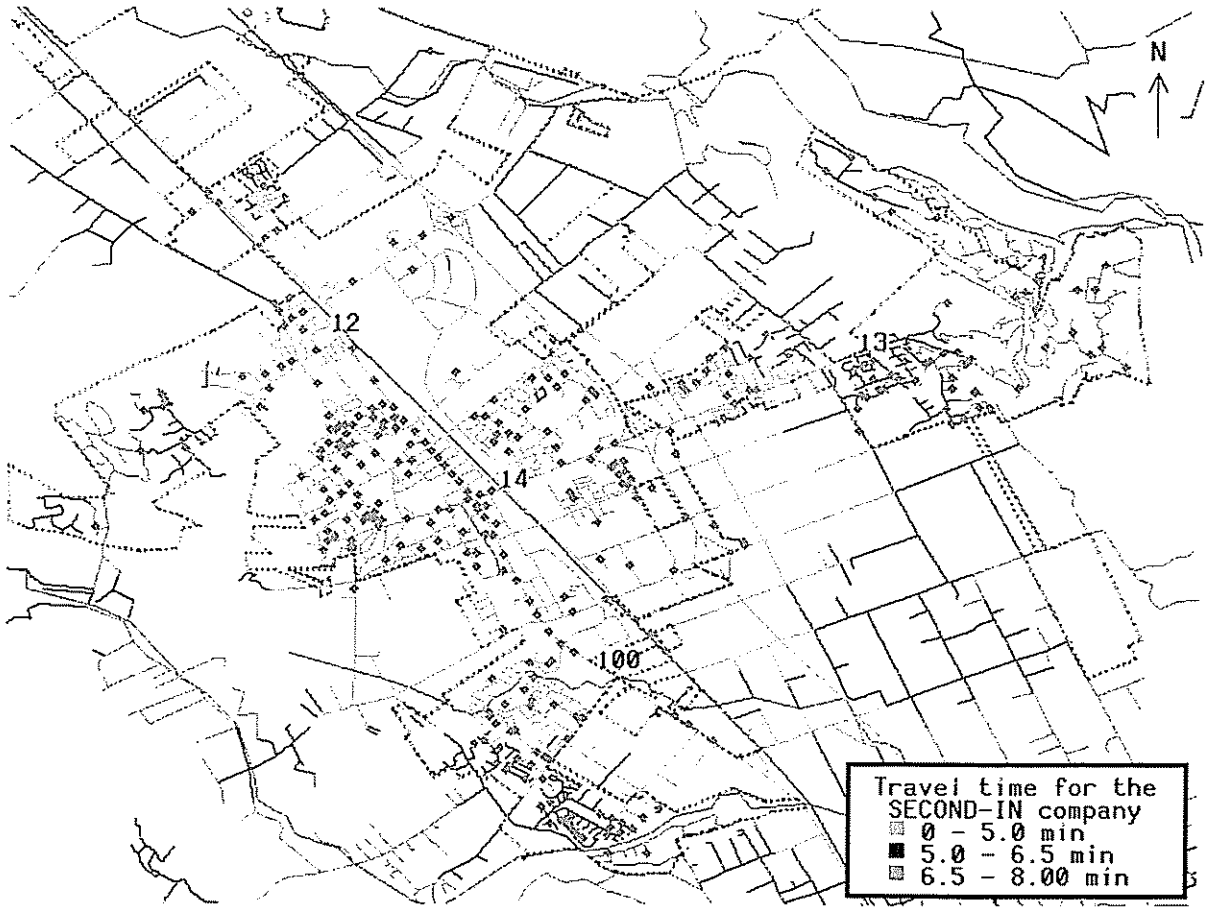
Graphic Summary of Computer Modeling

Graphic A – First In Coverage Provided by Master Plan Recommendations[5]



[5] Dots Represent calls for service

Graphic B – Second In Apparatus Response Coverage of Master Plan Recommendations



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Profile of Existing Fire Department Operations and Staffing – City of Morgan Hill (CA)

Introduction and Overview

The pages that follow describe the operations, staffing and systems currently utilized to deliver a fire defense and emergency medical system to the residents of, workers and visitors to, Morgan Hill. It is based upon observations and analysis of operations of the Santa Clara County Fire Department as well as on interviews with the management staff of the Fire Department and City Officials as well as review of various reports and plans.

The purpose of this summary is to document our current understanding of major programs and activities for review by the Technical Advisory and Task Force to ensure accuracy and to provide the basis for identifying issues for additional analysis.

Fire Department Operational Configuration

The City of Morgan Hill currently receives fire protection and EMS Advanced Life Support First Responder services through a contractual agreement with the Santa Clara County Fire Department and additionally, through automatic aid agreement with the South Santa Clara County Fire Protection District.

The Santa Clara County Fire Department currently provides services from 2 Fire Stations located throughout the incorporated limits of the City of Morgan Hill. The Exhibit below summarizes the station locations, equipment/apparatus and staffing:

Station	Location	Apparatus	Personnel
12 – El Toro	18300 Old Monterey Road	Engine 12 Truck 12 Battalion 12 Patrol 12 Reserve Engine 112	3 Cross Staffed 1 Cross Staffed
13 – Dunne-Hill	2100 E. Dunne Avenue	Engine 13 Patrol 13	3 Cross Staffed
			7 On-Duty Staff

Additionally, approximately 30% of the City is provided first response coverage for both fire and EMS through an Automatic Aid agreement that the Santa Clara Fire Department maintains with the South Santa Clara Fire Protection District. The South Santa Clara Fire Protection District in turn contracts with the California Department of Forestry and Fire Protection to provide fire protection and EMS services.

The table below summarizes the location and staffing of this resource:

Station	Location	Apparatus	Personnel
1	15670 Monterey Street	Engine	2 Additional Staffing when available

The Santa Clara County Fire Department responded to 2,772 calls for service from the fire station facilities in Morgan Hill during calendar year 2000. Of these, 2,228 (76.7%) where within the corporate limits of the City. An additional 492 were into the unincorporated areas of the County. 144 calls were into San Jose and another 8 calls were unattributable as to jurisdiction.

The types of calls for service are reflected in the Exhibit below:

Exhibit 1-1
Summary of Calls For Service by Type

Type of Call for Service	Total Calls Responded To	Percentage of Calls
EMS/Rescue/Accident	1,830	66.0%
Alarms	208	7.5%
Service Calls	160	5.8%
Brush/Grass	115	4.1%
Other Fires	116	4.2%
Vehicle Fires	91	3.3%
Structure	79	2.8%
Smoke Investigations	65	2.3%
HazMat	52	1.9%
Wires Down	23	0.8%
Gas Investigation	23	0.8%
Other/Misc.	10	0.4%
	2,772	**100.0%**

Apparatus Activity

The Santa Clara County Fire Department fire stations in the City of Morgan Hill have primary responsibility to provide service within the incorporated boundaries of the City. They are also part of a larger response network that exists outside of the corporate boundaries. Additionally, South Santa Clara Fire Protection District serves a significant part of the Southeastern area of the City while the Santa Clara Fire Department serves a significant unincorporated area on the northern rim of the City through the existing automatic aid agreement.

The activity of the relevant units that are the principal apparatus serving the City of Morgan Hill are summarized in the Exhibit below:

Exhibit 1-2
Call For
Service Demand by Apparatus

Unit Type/Number	Location	Calls for Service
Engine 12	Station 12 (El Toro)	1,282
Engine 13	Station 13 (Dunne-Hill)	841
South County Engines	CDF Station Monterey	635
Truck 12	Station 12	178
San Jose Units		166
Battalion 3	Station 3	140
Battalion 12	Station 12	100
Engine 8	Station 8 (Quito)	56
Engine 3	Station 3 (Los Gatos)	55
Investigators		9
Patrol 13	Station 13	9
Other/Misc.		44
TOTAL UNIT MOVEMENTS		**3,515**

An analysis was conducted of the median, mean and fractile response times for initial responding units for calls for service within the City of Morgan Hill. The presentation of response time data is more descriptive of the service levels received

within the various response areas then the typical "average" response times usually reported. In the data that follows, the percentage of calls responded to within the timeframes reported in the left column are found in the right column. That is to say, in the exhibit for Engine 12 below, the row that reads 80% indicates that 80% of *all* calls responded to were within the time frames reported. Additionally, there are two time intervals reported for each fractile measurement. The first column reflects the total time from 911 Dispatch until arrival at scene of the incident. The far right column reflects the "travel time" to the incident, or the time the apparatus spent actually traveling to the incident. The latter does not include "prep" or "turn-out" time, but is reflective of the most common measure of response performance utilized in contemporary organizations.

The following exhibits reflect the various response time performance of the relevant apparatus:

Exhibit 1-3
Engine 12 Response Time Performance

Percentage of Responses	Dispatch to Arrival Time	Travel Time
10%	2:27	1:35
20%	3:07	2:12
30%	3:29	2:34
40%	3:48	2:52
50%	4:07	3:12
60%	4:34	3:34
70%	5:10	4:02
80%	5:40	4:38
90%	6:47	5:50
Mean Turn-Out Time	Mean Dispatch/Arrival	Mean Travel Time
0:57	3:52	3:09
Median Turn-Out Time	Median Dispatch/Arrival	Median Travel Time
1:04	4:07	3:12
Mean Time Committed	Median Time Committed	
17:49	17:05	

Exhibit 1-4
Engine 13 Response Time Performance

Percentage of Responses	Dispatch to Arrival Time	Travel Time
10%	2:26	1:27
20%	3:23	2:26
30%	3:57	3:00
40%	4:25	3:20
50%	5:01	3:55
60%	5:25	4:27
70%	6:09	5:10
80%	7:40	6:18
90%	9:55	8:21
Mean Turn-Out Time	Mean Dispatch/Arrival	Mean Travel Time
0:57	5:35	4:35
Median Turn-Out Time	Median Dispatch/Arrival	Median Travel Time
1:03	5:01	3:55
Mean Time Committed	Median Time Committed	
22:06	17:14	

Exhibit 1-5
South County Engine 1 Response Time Performance

Percentage of Responses	Dispatch to Arrival Time	Travel Time
10%	1:07	0:24
20%	2:44	1:07
30%	3:38	1:38
40%	3:56	1:54
50%	4:24	2:19
60%	4:54	2:46
70%	5:31	3:12
80%	6:06	3:35
90%	7:23	4:30
100%		
Mean Turn-Out Time	Mean Dispatch/Arrival	Mean Travel Time
2:06	4:54	2:38
Median Turn-Out Time	Median Dispatch/Arrival	Median Travel Time
2:11	4:24	2:19
Mean Time Committed	Median Time Committed	
18:48	17:55	

Demand for Service by Station

The table below outlines the subtotals, by station response area, of the demand for service as measured by responses from each of the respective stations. This includes multi-company responses such as structure fires:

Exhibit 1-6
Calls for Service By Station

Station	Total Calls	% of Total
12 – El Toro	**1,634**	**60%**
13 – Dunne-Eden	**480**	**17%**
South County	**492**	**17%**
San Jose/Other	**166**	**6%**

Demand for Service by Type of Call

The tables below summarize the types of calls dispatched to the various units within the City of Morgan Hill fire defense system. This includes calls where there may be multiple apparatus on a single incident:

Exhibit 1-7

Engine 12 (El Toro) Calls for Service by Type

	Total Calls	% of Station Total	% of Total Responses
Accident	158	9.7%	6.1%
Alarm	139	8.5%	5.3%
EMS Calls	922	56.4%	35.4%
Brush Fires	18	1.1%	0.7%
Grass Fires	34	2.1%	1.3%
HazMat Response	26	1.6%	1.0%
Rescue	18	1.1%	0.7%
Smoke Investigation	33	2.0%	1.3%
Structure Fire	47	2.9%	1.8%
Service	112	6.9%	4.3%
Trash Fire	16	1.0%	0.6%
Vehicle Fire	30	1.8%	1.2%
Other	81	5.0%	3.1%
	1,634[6]		

[6] Totals from Exhibit 1-7 may differ from Exhibit 1-1 due to the nature of response capability of Truck 12. Captains on-duty have discretion as to the staffing and response of that unit which results in some variance between dispatch data and actual response data.

Exhibit 1-8
Engine 13 (Dunne-Hill) Calls for Service by Type

	Total Calls	% of Station Total	% of Total Responses
Accident	83	17.3%	3.2%
Alarm	50	10.4%	1.9%
EMS Calls	197	41.0%	7.6%
Brush Fires	4	0.8%	0.2%
Grass Fires	14	2.9%	0.5%
HazMat Response	16	3.3%	0.6%
Rescue	5	1.0%	0.2%
Smoke Investigation	16	3.3%	0.6%
Structure Fire	11	2.3%	0.4%
Service	35	7.3%	1.3%
Trash Fire	13	2.7%	0.5%
Vehicle Fire	22	4.6%	0.8%
Other	14	2.9%	0.5%
	480		

Exhibit 1-9
South County Fires Calls for Service by Type

	Total Calls	% of Station Total	% of Total Responses
Accident	80	16.3%	3.1%
Alarm	19	3.9%	0.7%
EMS Calls	266	54.1%	10.2%
Brush Fires	9	1.8%	0.3%
Grass Fires	16	3.3%	0.6%
HazMat Response	7	1.4%	0.3%
Rescue	5	1.0%	0.2%
Smoke Investigation	15	3.0%	0.6%
Structure Fire	19	3.9%	0.7%
Service	12	2.4%	0.5%
Trash Fire	3	0.6%	0.1%
Vehicle Fire	15	3.0%	0.6%
Other	26	5.3%	1.0%
	492		

Geographic Clustering of Demand for Services

Like many jurisdictions, the demand for services in the City of Morgan Hill is clustered around a relatively few locations or occupancies. The table below summarizes the service demands placed on the system by the 31 most active locations within the response system (this includes addresses both within and outside of the corporate limits of the City). This table reveals that these 31 addresses/locations comprise 21.54% of the total call demand within the system:

Exhibit 1-11
Call Demand by High Utilization Locations

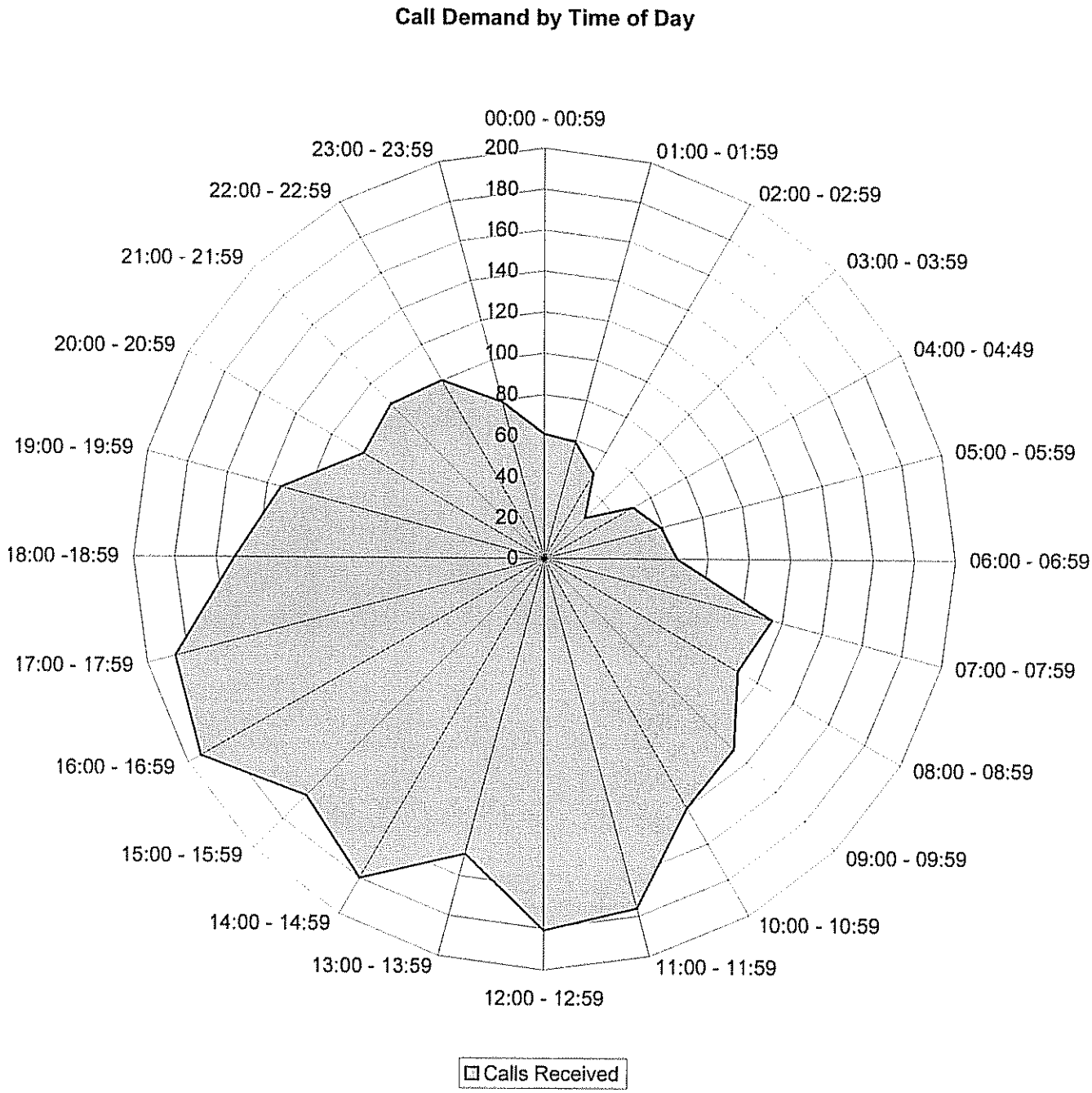
Address	Occupancy	No. Calls
FY 101/Cochrane		89
FY 101/Coyote Creek		60
370 Noble Ct.	Skilled Nursing Facility	41
16130 Hernandez Dr.	Medical Clinic	31
275 Burnett	Mobile Home Park	31
230 E. Dunne	Apartments	24
1505 E. Main	High School	23
17035 Condit Rd.	Motel	17
530 E. Dunne	Skilled Nursing Facility	17
FY 101/E. Dunne		17
16095 Church St.	Skilled Nursing Facility	16
16955 Del Monte	Apartments	16
17945 Monterey Highway	Mobile Home Park	16
200 Burnett	Mobile Home Park	16
FY 101/Bernal		16
15016 Shasta Lane	Private Residence	15
15200 Monterey Highway	Mobile Home Park	15
18298 Coyote Rd/Anderson Res		15
18225 Hale	Transitional Facility	14
18400 Butterfield	Apartments	14
FY 101/Tennant		14
FY 101/85		13
Monterey/E. Dunne		13
2815 Fountain Oaks	Private Residence	11

575 San Pedro	Mobile Home Park	11
650 E. Dunne	Neighborhood Commercial	11
Monterey HWY/W. Main		11
FY 101/Metcalf		10
Sub-Total Calls for Service List		**597**
Total Calls for Service – System		2,772
29 Locations - % Call Load		**21.54%**

Call For Service Demand by Time of Day

The graph below illustrates the demand for services of Morgan Hill units by hour of day:

Exhibit 1-12
Calls for Service by Hour of Day



Response Effectiveness of Current System

Articulated Goals and Performance Standards

Specific levels of performance are not articulated in the Contract between the City of Morgan Hill and the Santa Clara County Fire Department. Section 3.03 of that agreement requires the Santa Clara Fire Department to "perform all services required under this agreement in a manner and according to the standards observed by competent fire personnel providing equivalent services." Section 3.01 loosely defines service levels as "...the number of employees per engine or truck or ...the number of stations or related services or personnel maintained and operated by the District as required by this agreement."

The Santa Clara County Fire Department outlines performance goals in a business plan published by the Department. With respect to Fire Suppression, Rescue/Extrication and Emergency Medical Services, the Departments' stated goal is to "arrive at the scene of emergencies within 5-minutes of receipt of alarm, at least 90% of the time."

Current System Performance

As illustrated by the Exhibits above, the current fire defense system fails to obtain the goals stated in the Santa Clara County Fire Department Business Plan as to responses within the City of Morgan Hill. The table below outlines the response performance of the current system:

Exhibit 1-13
Current System Initial Response Time Performance

	90% Fractile Time from Call Receipt to Arrival	% of calls within 5-Minute "Receipt to Arrival" Time[7]
Station 12	**6:47**	**68%**
Station 13	**9:55**	**50%**
South County	**7:23**	**64%**
Overall	**7:43**	**59%**

[7] Because of data collection limitations the response time parameters for South County reflect responses in Morgan Hill only, while the Morgan Hill units reflect all responses within this table.

Traditional evaluations of fire service systems are based primarily on a geographic basis (i.e. the ability to cover specific portions of geographic area). This has been consistent with the cost structures associated with Fire Service delivery in as much as Fire Services have traditionally been "statically deployed". That is, they have responded to certain geographic areas from static Fire Stations that require substantial investment of capital and often a public taking of private land.

In recent years, following models developed by the "dynamically deployed" elements of public safety – namely law enforcement and ambulance services, Fire Service managers have sought to evaluate the impact of Fire Station location based upon their ability to meet the needs of historical and projected call volume. This had led to the adoption of some of the performance goals identified for this study – namely, the standard calling for 5 minutes or less from "receipt of alarm" to arrival at scene 90% of the time for requests for emergency response. The combination of infrastructure investments associated with the statically deployed resources (i.e. Fire Stations) in combination with the flexible response needs required to respond to a set percentage of demand for services sometimes creates a conflict in the development of service models.

With this in mind, the project team utilized a four dimensional analytical approach to defining the fire service delivery effectiveness and needs for the City of Morgan Hill. The dimensions considered involve fire flow delivery, the "2-In/2-Out" requirements of interior firefighting, the impacts of system design on Insurance Services Office (ISO) rating, and the ability of various models to meet the 90% of call volume within 5 minute travel time requirement[8].

Fire Flow Delivery

The first level of analysis is the ability of the Fire Suppression forces to assemble and safely deliver the resources necessary for the possible rescue of a person trapped or abandoned in a structure fire. Numerous studies have shown that given common

[8] Please see Appendix "D" for definitions of "Travel Time" vs. "Response Time" and other elements of the response continuum.

combustibles (fire loading) in a typical light commercial or residential structure, that flashover will occur 8 to 10 minutes after full, sustainable combustion.

At the time of "flashover", the survivability of persons in a given room is greatly diminished and the fire suppression operation becomes greatly expanded. It is at this point where, essentially, the fire progresses from being a "bedroom" fire to being a "house fire".

Numerous laboratory studies have consistently demonstrated that, given standard "fire loading" in a residential environment, the time from smoke detector activation until "flashover" is typically 8:00 minutes. While not all fires are first discovered at the detection of a smoke alarm, this interval gives planners a good basis on which to base various response modeling. If a model provides for an additional minute each for dispatching, turn-out and set-up time – then a 5:00 minute travel time provides a reasonable model of community risk.

The first level of analysis undertaken by the project team, was an evaluation of the ability of the current system to deliver water (fire flow) onto an open burning fire. Structure fires that have become "open burning" require a different tactical and strategic approach than fires still burning within a structure – not having achieved "flashover'. The ability of the fire defense system to place an adequate amount of water on an open burning fire is an indication of their ability to prevent the spread of the fire to neighboring properties – or in the extreme, a community wide conflagration.

Fire flow delivery is a function of pumping capacity, personnel and water availability. There is a wide array of water availability and fire flow demand scenarios in the City of Morgan Hill. In order to account for this, the project team modeled a fairly routine water delivery scenario – 750 gallons/minute (gpm) within 10 minutes. 750 gpm can be delivered utilizing 3 2½" or 3" hose lines – commonly found in the fire protection industry. Each hose line requires 2 people in addition to 2 pump operators and scene management. Given this staffing demand, a minimum staffing configuration of 9 people is arrived at. This staffing model is at the theoretical maximum of current full-time staffing in the Morgan Hill area including a Chief Officer (Battalion 12). If it is assumed that 3-Person staffing is available from the South Santa Clara Fire Protection District, then the maximum available first alarm response constitutes 10 people. The

ability of the current system to deliver this level of staffing within stated response times is reflected in page 124 of Appendix "A" of this report. Under the current system, additional units for a required "depth of response" (i.e. second alarms) respond from neighboring jurisdictions. Resources from the Quito and/or the Los Gatos stations of the Santa Clara County Fire Department are utilized for "move-up" station coverage. One aspect of this study, was the modeling of the ability of the current system to deliver additional personnel and suppression capability utilizing units outside of the immediate study area. This analysis was driven by two primary measures of service effectiveness.

Two-In/Two-Out

In January of 1998 the Federal Occupational Safety and Health Administration made the provisions of 29 CFR 1910 applicable to firefighters (this was adopted by CalOsha in March of 1999). This section deals with the respiratory protection and safety processes required for the entry of personnel into "confined and hazardous spaces".

In short, this regulation requires that prior to entering a hazardous environment (which has been specifically clarified to include smoke filled buildings or buildings in which an "incipient" fire is burning):

- Firefighters must wear approved and functioning air masks
- Must operate in a "buddy system" within the hazardous environment (2 people required on the interior)
- Must have 2 more people on the exterior of a building in a state ready to provide rescue and aid to the initial rescue team within that building.

While there are practical and theoretical exceptions to this rule, the adoption of this standard requires that the fire protection delivery system have in place the infrastructure to normally deliver a minimum of four people on the scene of an incident prior to the initiation of interior rescue operations[9]. For sake of clarity and consistency, while modeling both the current and potential alternative systems, a 5-minute travel time interval was used to model the systems performance.

Insurance Services Office Rating

The third level of analysis is a comparison to the rating schedule of the Insurance Services Office/Commercial Risk Services. This rating is utilized by the Insurance Industry as one of the mechanisms involved in determining relative risk, and thus relative rates of insurance premiums.

While the ISO Fire Suppression Rating mechanism was never intended to be utilized as a design mechanism for municipal fire defense systems, it does posses a certain degree of practical implication on the community costs involved in providing fire protection services. Currently, Morgan Hill enjoys at Class 4 rating, based upon an evaluation conducted in 1992[10].

The Fire Suppression Rating Schedule is but one tool utilized by the insurance industry to evaluate risk and set premiums. Large commercial/industrial buildings are almost universally ranked independently today and do not impact the community's Fire Suppression Rating Schedule. However, the community's rating is a factor in the rating of these large buildings. In the analytical portion of this project, an evaluation will be conducted of the past rating experience and the opportunities that exist to improve service delivery based upon the metrics provided by ISO.

Computer Modeling of Current Response Capabilities

Pages 118 through 122 in Appendix 'A', represent the current levels of service provided by the current system design and infrastructure with respect to initial first response capability, ability to deliver staffing consistent with the "2-In/2-Out" interior rescue requirements, and fireflow delivery. Additional, Page 117 illustrates the closest station by response time, regardless of jurisdiction, to all areas of the City of Morgan Hill.

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[9] The primary exception allows for entry if a know exigent rescue situation is present.

[10] The Insurance Services Office produces ratings of Public Fire Protection of communities in America. The scale ranges from "1" extremely high level of water availability, trained staff and pumping capacity to level "10" which is virtually unprotected. Level 4 is not uncommon in suburban communities.

Response Plans and Patterns

The Santa Clara County Fire Department has developed response plans in order to ensure an appropriate level of resources needed to mitigate an emergency situation. The following exhibit reflects the response plans of the Fire Department:

Exhibit 1-18
Response Plans for Santa Clara County Fire Department by Type of Event

Type of Response	Initial Resources Committed
Residential Fire	2 Engines 1Truck 1 Rescue or HazMat Unit 1 Chief Officer
Residential Second Alarm	2 Engines 1 Truck 1 Rescue or HazMat Unit Additional Chief Officers
Commercial Fire	2 Engines 1 Truck 1 Rescue or HazMat 1 Chief
Commercial Second Alarm	2 Engines 1 Truck 1 Rescue or HazMat Additional Chiefs
Vehicle Accident	1 Engine 1 Rescue as Needed
Rescue	1 Engine 1 Rescue (w/E1212) 1 Chief
HazMat	2 Engines 1 HazMat Unit (2 Specialists) 1 Chief
Medical Aid	1 Engine 1 Medic Ambulance (Contracted)
	2 Engines

Wildland	1 Patrol 1 Chief Officer
Alarm Response/Investigation	1 Engine

Ancillary and Support Services Provided to Morgan Hill

The contract to provide fire services to Morgan Hill is inclusive of all services related to fire protection. As such, the Santa Clara County Fire Department provides services beyond the obvious deployment of fire apparatus. Ancillary services related to the provision of fire protection and EMS services include the following:

- Hazardous Materials Management and Response
- Fire Prevention Inspections
- Public Education
- Development Review and Enforcement
- Fire Investigations
- Juvenile Fire Setter Counseling Program
- Communications and Dispatch Services
- Fleet Maintenance
- Facilities Maintenance
- Administrative Support Functions including Human Resource Management
- Training and Human Resource Development
- Supplemental Flex Staffing for High Hazard Fire days

All of these functions are provided by the Santa Clara County Fire Department on a regional basis. The approach of the Fire Department is to encourage regional delivery of fire services – as a result a synergistic effect is created within the agency when new contracts are received. Therefore, separate costing is not provided for each individual contract agency.

This makes a direct analysis of charges/costs difficult from the perspective of the Santa Clara County Fire Department. However, it is important to note and identify the specific services and level of services that are currently being provided so that any future competitive process or re-negotiation of the existing contract is inclusive of all services being provided. The remaining part of this section attempts to identify and quantify the "ancillary" services currently provided to the City of Morgan Hill.

The Santa Clara County Fire Department undertakes fire prevention code enforcement and education activities. In California, several of these activities are

mandated by State Law. The Fire Department does have an Engine Company Inspection program that is in effect in the City of Morgan Hill.

Hazardous Materials Management and Response

The Santa Clara County Fire Department responds to all calls involving hazardous materials with a specialized Hazardous Materials Unit. The specialists assigned to this unit also conduct required inspections and surveillance activities associated with Hazardous Materials management.

In accordance with the existing agreement, mandated fees collected from hazardous materials users are forwarded directly to the City. There is no additional inspection or other related fee charged. Santa Clara County Fire records indicate that 94 plan reviews for hazardous material storage and use were conducted in calendar year 2000. An additional 23 site inspections related to hazardous materials management were conducted as well. County Fire estimates that approximately 0.5 F.T.E. is required to manage the current Hazardous Materials responsibilities in the City of Morgan Hill.

Fire Prevention Inspections

The City of Morgan Hill receives benefit of one, full-time deputy fire marshal assigned to duty in the City. Additionally, approximately 0.4 F.T.E. Deputy Fire Marshal services the City's contract.

These Fire Prevention staff members conducted 297 inspections regulated by State Law (Title 19, etc.). An additional 39 inspections were conducted in response to citizen complaints. Additionally, engine company crews have responsibility for conducting approximately 1,027 inspections of commercial occupancies within the City.

The Santa Clara County Fire Department also conducts a Residential Brush Clearance Program. A total of 1,344 homes and residential lots are inspected on a semi-annual basis (this results in approximately 650 inspections/year). These residences are located within the Hazardous Fire Area as defined by the Fire Department.

Public Education

In calendar year 2000, there were 55 public education events in the City of Morgan Hill conducted by the Santa Clara County Fire Department. These activities include the S.A.F.E. house, displays of fire apparatus at fairs, fire station tours, etc. There is currently not an integrated fire safety curriculum utilized with the schools in Morgan Hill.

Development Review and Enforcement

The Fire Department participates in the full spectrum of the development process. These activities are the responsibility of one of the deputy fire marshals described above. The Deputy Fire Marshal participates in "Pre-Application" meetings of new develop. These occur on a weekly basis. Additionally, plan checks of new construction and all sprinkler systems are conducted by the Santa Clara County Fire Department.

Fees collected for development related services are forwarded directly to the City. Approximately 419 construction inspections were recorded by the Fire Prevention Division of the Fire Department in Morgan Hill. A total of 399 construction plan reviews were conducted. This includes plan checks of structural as well as fire protection system elements of various development projects.

The table below summarizes the fire prevention activities conducted in the City of Morgan Hill in calendar year 2000:

Exhibit 1-19
Fire Prevention Activities – City of Morgan Hill

Activity	Units
Construction Inspections	419
Annual Fire Inspections	297
Construction Plan Reviews	399
Complaints	39
Public Education Events	55
HazMat Annual Inspections	23
HazMat Plan Reviews	94
Hydrants Inspected	1,717

Fire Investigations/Juvenile Fire Setting Programs

On a per capita basis, the City of Morgan Hill had the highest rate of incendiarism of any area served by the Santa Clara County Fire Department. The Fire Department provides for the investigation of all significant fire and fires believed to be of incendiary origin. On-Duty or On-Call investigators are available 24-hours/day, 7-days/week.

Communications and Dispatch Services

Communications and Dispatch services are provided through Santa Clara County Communications which serves as the central dispatch point for Santa Clara County Fire. Services provided through this system include Computer Aided Dispatch (CAD) system with full integration into the 911 system (Automatic Number Identifier/Automatic Location Identifier), Medical Priority Dispatch System (MPDS), and seamless communication infrastructure with other Santa Clara County Fire Department Units. Additionally, the communication center is staffed 24-hours/day and has a built in redundancy in terms of both staff and infrastructure.

As noted above, direct costs are not associated with each contract area, however, it is estimated that the pro rated share (based upon relative volume of calls handled) of this dispatch and communication system for the City of Morgan Hill is approximately $120,000/year.

Fleet Maintenance/Facilities Maintenance

The City of Morgan Hill currently receives the benefit of a Fleet Maintenance Operation within the Santa Clara County Fire Department. This service includes a mobile repair and maintenance capability. Mobile mechanics are dispatched automatically to all 3rd alarm or greater incidents in the City of Morgan Hill.

Apparatus are managed in accordance with a District wide safety and preventative maintenance schedule. Santa Clara County Fire Department reserve apparatus are utilized during down time of front line apparatus.

Facilities, including generators, are maintained by the Fire Department within the terms of the agreement. Additionally, the Santa Clara County Fire Department utilizes a station supply and inventory system that provides logistical support for fire stations, requiring less down time and better control of inventories that is typically seen in fire service environments.

Administrative Support Functions including Human Resource Management

The Santa Clara County Fire Department currently provides all management of administrative functions, including Human Resource Management. Accordingly, all recruitment, retention and discipline issues are handled within the systems and structures of the Fire Department.

Training and Human Resource Development

The City of Morgan Hill currently receives the benefit of a substantial infrastructure created by the Santa Clara County Fire Department with respect to training and human resource development. The Department has fully integrated the Morgan Hill stations and human resources assigned there into this system. This includes the utilization of interactive multi-media training experiences including closed circuit television.

The Santa Clara County Fire Department maintains approved training facilities for manipulative training and evaluation of personnel. Multiple stations provides for the flexibility of crews to rotate into these training centers while other stations are rotated to cover the first in areas of the crews undergoing training activities. The City currently benefits from a recruitment program that results in a state approved, 480 hour recruit academy and the management of all mandated training and certifications of all personnel.

Relative Cost Structures and Projected Costs

As previously discussed, the Santa Clara County Fire Department does not individually cost the various political jurisdictions in which they provide services. The intent in so doing is to provide a structure within the organization in which true synergies may occur as opposed to creating a structure based upon individual jurisdictions which, by definition, will create duplication of effort.

As practical options are developed, it becomes necessary to provide a context for decision making with respect to potential and probable costs of various scenarios. In order to provide this context, two separate forms of analysis were conducted. In the initial analysis, an overview is provided of the existing contractual relationship and the cost structures that are described as "Apparatus Based" within that contract. In other words, system costs are accumulated and attributed on a "per-company" basis. The second analysis is a comparison of the total costs of the fire defense and EMS systems of the City of Morgan Hill to 4 other comparison cities in California. This provides a context for evaluating the relative cost effectiveness of current and proposed systems.

ANALYSIS OF CURRENT COST STRUCTURE

There are two basic components of contract costs which are determined on an annual basis: 1) The base amount which was determined in 1995; and 2) The amount of increase each year.

The base contract amount in 1995 was $2,755,341, as shown in the table on the following page. Cost components are as follows:

Exhibit 1-□ Personnel costs account for over $2.1 million — or over 78% of the total costs.

Exhibit 1-□ Services and supplies are budgeted at 15% of personnel costs, or about $323,000.

- Indirect costs is identified as 11% of all direct costs — personnel and services and supplies. This equates to about $273,000.

The above contract amount, or base amount, has been increased annually utilizing the lower of the March-to-March or February-to-February CPI in addition to the change in personnel costs at the Santa Clara County Fire Department. These increases are shown on the next page following the table.

Exhibit 1-20
City of Morgan Hill Original Contract Cost Structure

Position/Class	No. of Pos.	Monthly Sal & Ben	Total Cost
District Chief	1	9,819	117,828
Deputy Fire Marshal – Safety Retirement	1	7,597	91,164
Deputy Fire Marshal – Misc. Retirement	1	6,752	81,024
Firefighter/Engineer	12	6,989	1,006,416
Firefighter/Engineer	2	6,989	167,736
Captain	6	8,266	595,152
Captain, Relief	1	8,266	99,192
	24		2,158,512
Services and Supplies	15%		323,777
Total Direct Costs			2,482,289
Indirect Costs	11%		273,052
			2,755,341

Exhibit 1-21
Cost Escalation of Current Contract

Year	Beginning Cost	Escalation Factor	Escalation Amount	Ending Cost
1995/96	$2,755,341	1.20%	$33,064	$2,788,405
1996/97	$2,788,405	4.02%	$112,094	$2,900,499
1997/98	$2,900,499	3.40%	$98,617	$2,999,116
1999/00	$2,999,116	3.00%	$89,973	$3,089,089
2000/01	$3,089,089	6.50%	$200,791	$3,289,880
Cumulative Total		**18.12%**	**$534,539.00**	

Prior to this fiscal year, the contract charge amounts were reduced by planned credits, which over the five years accounted for over $2.7 million dollars and included the following components:

- About $ 1.036 million paid for real property and interest.
- $700,000 for equipment/personal property, with interest.
- $315,000 for impact fee credits.
- About $365,000 for salary credits. This is an adjustment as personnel moved through the salary steps to top step.
- Finally, about $400,000 in "pay-step" credits.

The credits ended last fiscal year with the City now obligated for the total contract amount of $3.3 million.

Utilizing the 1995 contract as a template, a cost structure can be constructed based upon the "knowns" in the charges (including the total amount due) and solving for the variables based upon the known cost percentages as follows:

Exhibit 1-22
Theoretical Cost Structure of Morgan Hill as Independent Cost Center

Position/Class	No. of Pos.	Monthly Sal & Ben	Total Cost
District Chief	1	11,724	140,687
Deputy Fire Marshal – Safety Retirement	1	9,071	108,850
Deputy Fire Marshal – Misc. Retirement	1	8,062	96,743
Firefighter/Engineer	12	8,345	1,201,662
Firefighter/Engineer	2	8,345	200,277
Captain	6	9,870	710,612
Captain, Relief	1	9,870	118,435
Salary, Wages and Benefits Total	24		2,577,266
Services and Supplies	*15%*		386,590
Total Direct Costs			2,963,856
Indirect Costs	*11%*		326,024
Total Cost/Charge FY 2000			**$3,289,880**

Based upon this method of analysis a framework is constructed that allows for meaningful comparison to other jurisdictions in terms of costs. Following this method of analysis it can be projected that:

- Morgan Hill pays about $712,614 a year in costs for ancillary services, supplies and equipment — or an average of almost $30,000 a year per contract position.

- Following this approach, a third engine (at current staffing levels) would cost about $1.4 million dollars, as illustrated below:

Exhibit 1-23
Apparatus Based Costing Methodology – Cost of Additional Apparatus

Position/Class	No. of Pos.	Monthly Sal & Ben	Total Cost
Firefighter/Engineer	6	8,345	600,831
Firefighter/Engineer	1	8,345	100,138
Captain	3	9,870	355,306
Captain, Relief	0.5	9,870	59,218
	10.5		1,115,493
Services and Supplies	15%		167,324
Total Direct Costs			1,282,817
Indirect Costs	11%		141,110
			1,423,927

The obvious flaw to this method of analysis is that there currently exists some degree of infrastructure related to the ancillary services provided above (i.e. fire prevention, public education, fire investigations, communications and training infrastructure) that would not have to be replicated in the event of an additional station. In fact, expansion of the current system may actually take the size and scope of the system to the point where additional savings in these areas could accrue to the City. Notwithstanding this disclaimer, however, this method of analysis provides an interesting context to the existing agreement.

Taking this analysis to the next level, a fourth person on one of the two current engines would cost about $389,000 based upon this costing model. In this analysis, the allocation for Services and Supplies is omitted on the theory that the incremental addition of 3 or 3.5 personnel in a system this large would not necessarily drive the addition of support staff, apparatus maintenance, apparatus acquisition, etc. The in-direct cost

component is modeled to remain the same. The components of this cost is summarized in the table below:

Exhibit 1-24
Apparatus Based Costing Model – Addition of 1 F.T.E. Firefighter Position

Position/Class	No. of Pos.	Monthly Sal & Ben	Total Cost
Firefighter/Engineer	3	$8,345	$300,415
Firefighter/Engineer	0.5	$8,345	$ 50,069
Sub-Total	3.5		$350,485
Indirect Costs	11%		$38,553
			$389,038

Comparative System Model of Cost Analysis

The costs attributable to the totality of the fire defense and EMS systems were evaluated for numerous Cities in California. This method recognizes that there are several various elements that go into the fire defense and EMS system and regardless of how they are accounted for, they all eventually are reflected in the bottom line – or the total cost of the system. To the extent possible, the budgetary allowances of each of the jurisdictions is summarized by four categories; 1) Personnel Costs (Salaries and Benefits), 2) Operational Costs, 3) Capital Costs and 4) Debt Service.

These costs are then compared against several dimensions including population, demand for services, number of apparatus, etc. From this an evaluation can be made as to the expected costs in any given model of fire protection and/or EMS delivery.

The table below summarizes the budgetary allocations for the cities in the study group:

Exhibit 1-25
Comparative Budget Expenditures by Department

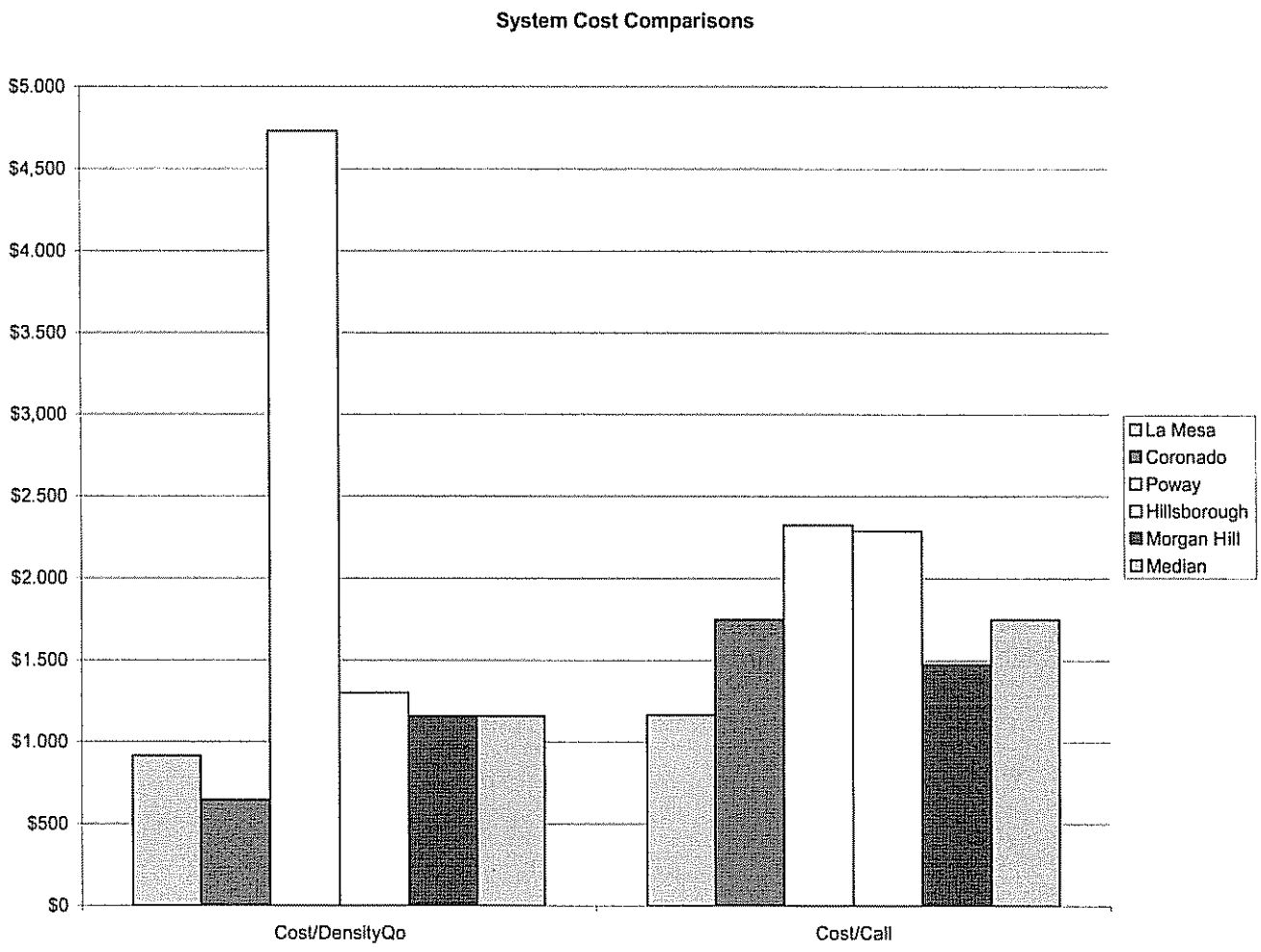
	La Mesa	Coronado	Poway	Hillsborough	Morgan Hill
Salaries/Benefits	$4,280,890	$2,308,683	$4,549,920		$2,577,266
Operational	$738,170	$174,680	$1,147,970		$712,614
Capital	$16,080	$142,078	$106,960		
Debt Service	$0	$0	$0		
Total	**$5,035,140**	**$2,625,441**	**$5,804,850**	**$2,745,830**	**$3,289,880**

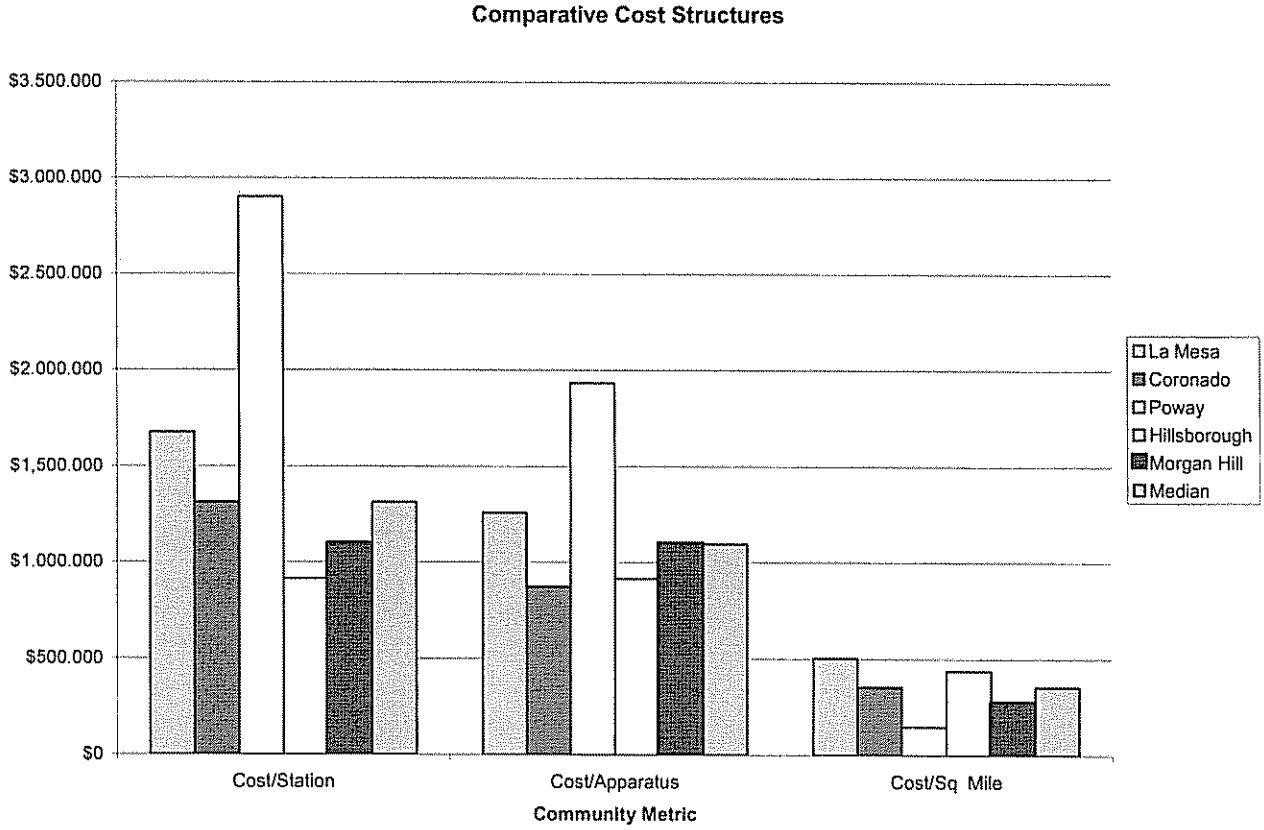
The relative costs of these systems are reflected in the table below which utilizes several metrics to evaluate the current costs relative to significant system and community variables:

Exhibit 1-25a
Comparative Cost Matrices

	La Mesa	Coronado	Poway	Hillsborough	***Morgan Hill***	Median
Cost/Station	$1,678,380	$1,312,721	$2,902,425	$915,277	*$1,096,627*	$1,312,721
Cost/Apparatus	$1,258,785	$875,147	$1,934,950	$915,277	*$1,096,627*	$1,096,627
Cost/Sq. Mile	$503,514	$354,789	$148,083	$438,631	*$274,157*	$354,789
Cost/1k Pop.	$91,548	$87,515	$120,683	$208,017	*$96,761*	$96,761
Stations/ Sq Mile	0.30	0.27	0.05	0.48	*0.25*	0 27
Cost/DensityQo	$915	$648	$4,731	$1,302	*$1,161*	$1,161
Cost/Call	$1,169	$1,750	$2,325	$2,288	*$1,477*	$1,750

The graphs that follow illustrate the relative costs of the various systems utilized in this comparison:


System Cost Comparisons
$5.000
$4,500
$4.000
$3.500
$3,000
$2.500
$2.000
$1.500
$1.000
$500
$0
Cost/DensityQo
Cost/Call
La Mesa
Coronado
Poway
Hillsborough
Morgan Hill
Median



The analysis of system costs from the perspective of this comparative basis reveals a cost structure that is consistent with overall fire defense systems in comparably sized jurisdictions. It is important to note however, that this analysis is based upon a three station configuration – not a two station configuration. If a two station configuration were utilized in the analysis, the comparisons to the metrics of "Cost/Station" and "Cost/Apparatus" would be adjusted upward to reflect the lower denominators. Both costs would increase to $1,644,940. While this represents an increase of almost $550,000 – it still leaves the cost structure of Morgan Hill in the median of the study group.

The percentage of total contract amount attributed to other than direct staffing is 27.7% of salaries, wages and benefits. The mean of the other jurisdictions in this study is 19.64%, ranging from 13.72% to 27.58%. In absolute terms, this share of budget allocation appears to be high and provide an opportunity for savings. However, it must

be noted that none of the other jurisdictions in the study provide regional HazMat Services, fire investigation services and only one other jurisdiction (Poway) owns and operates a fire training facility. Considering the range and depth of services provided, these costs appear to be within the framework of reasonableness. However, it is in this cost delta that a crucial public policy decision must be made with respect to total overall system costs and the expectant quality of the delivery system.

Projected Growth and Impacts on Service Levels

The City's population in the year 2000 was estimated at 33,822. The population ceiling as of January 1, 2010, is 38,800. This ceiling was established through the City's Residential Development Control System (RDCS), which was extended by Morgan Hill voters in 1990 through approval of Measure P. Characteristics and components of the RDCS include the following:

- The RDCS applies to types of residential development in the City of Morgan Hill, including single and multi-family housing as well as mobile homes.

- The population ceiling noted above shall not be increased, regardless of whether additional lands are added to the City or its Urban Service Area.

- The number of residential development allotments for any fiscal year shall be limited to a number equal to the desired annual population increase for that fiscal year divided by the occupancy level per dwelling unit.

- The annual development allotments shall be allocated to proposed developments based on points scored under a point scale. This scale takes into account the impact on public facilities and services, schools, water supply system, sanitary sewer and treatment plant, drainage and runoff, fire and police protection, traffic and other municipal services. Also, points are awarded for the provision of schools and related facilities, open space, orderly and contiguous development, public facilities, parks and trails, low and moderate income housing and housing for the elderly, and diversity of housing types, and for the quality of architectural design and site design.

Measure P and the above planning assumptions expire in 2010. After that, the General Plan assumes that some form of residential growth control and the current rate of 250 new units per year will continue until 2020, resulting in a City population of about 48,000. The Urban Growth Limits of the City provide an opportunity to annex additional land into the City of Morgan Hill. While the exact extent of the ultimate amount of annexation is unpredictable, it is estimated that approximately 150 - 200 acres of land will be annexed into the City during the planning horizon. This results in an additional 0.3 square miles of developable land. The density development within the City, given these assumptions, will then increase from approximately 2,816 people/square mile to 3,180 people/square mile in 2010 and approximately 3,883 people/square mile in 2020. This represents an increase of approximately 14% in density overall, within the City. Multiple studies have confirmed that increases in density in both urban and suburban populations are directly correlated with increased demand for public safety services. This moderate increase in density is reflected in the projected call demand presented in the section that follows.

This results in a relatively stable implied increase in the rate of growth of service demand. Increasing population and development experienced as the City of San Jose expands southward, combined with the increased densities outlined above will result in an increasing rate and absolute demand for services and this is projected over the planning period.

Additionally, the increasing population growth and resulting density will impact the transportation infrastructure, making utilization of traditional fire apparatus more difficult and impacting response (i.e. travel times).

The City of Morgan Hill has adopted a circulation element to its General Plan that will provide a degree of relief from response time inhibitions caused by increasing traffic volumes. Specifically, the improvement of Hill Road from Main to Cochrane will facilitate travel times to that area of the City. Despite this, and similar improvements, it is projected that coordinated traffic control mitigation must be incorporated into advanced planning in and around the City. Additionally, the current provider and future system design alterations should consider alternative delivery vehicles and deployment that can be used to manage and/or mitigate the delays to timely response caused by traffic

congestion and infrastructure overload. The impact of greater traffic congestion yields a factor in favor of adding additional facilities to offset travel time impacts.

Consistent with the guidelines outlined above, Morgan Hill's planned development and growth is limited in scope and the projected impact on overall resident population. Currently, there are 29 approved development projects scattered throughout Morgan Hill, of which none is individually significant in terms of measurably impacting various City services.

Commercial and Industrial Development

There are currently approximately 2.5 million square feet of large commercial/industrial development found within the approximate boundaries of the City of Morgan Hill. Currently, there are approximately 2.95 million square feet of industrial or commercial development that has received some form of development approval It is anticipated that by 2010, there will be a total of over 5 million square feet of large scale commercial/Industrial development found within the City of Morgan Hill.

The large span buildings typically associated with this type of industrial development have their own, unique impacts on the fire defense needs of the community. While their impact on community ISO Ratings are minimal, the large breadth of these buildings and the process and/or storage hazards associated with them often provide the need for specialized equipment and services such as Truck Companies and Hazardous Materials Response Units.

In the case of Morgan Hill, Hazardous Materials response is already provided through a regional delivery scheme through the Santa Clara County Fire Department. The need to provide additional truck company services will be addressed in the next section.

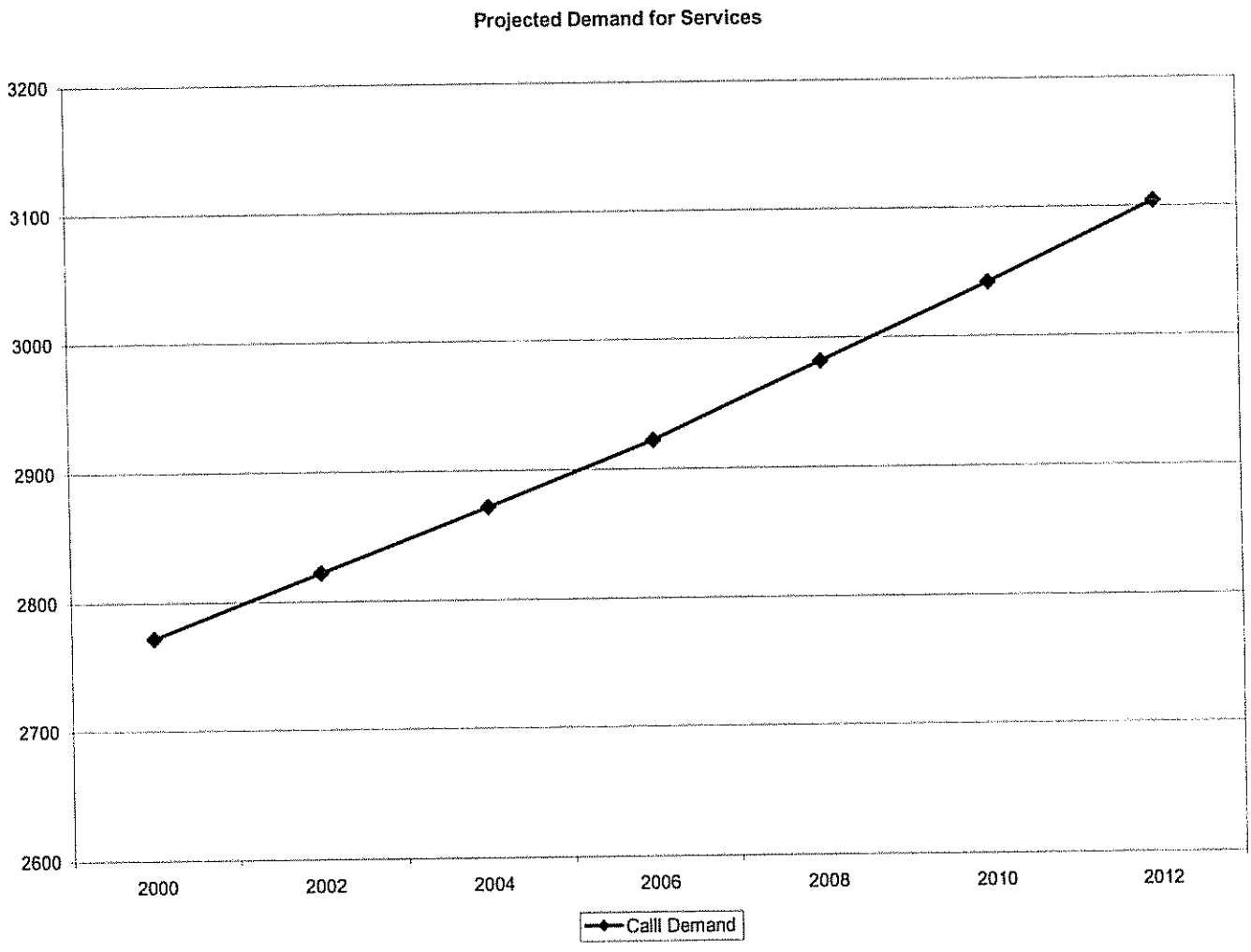
Projected Impacts on Call Demand

The graph on the following page represents a projected impact on call demand of the growth scenario described above. It is anticipated that demand for services will be largely driven by Emergency Medical Services and calls related to the transportation infrastructure.

However, as mentioned in the previous section, the added impacts caused by large footprint/large span commercial buildings will most likely increase the need for specialized Truck services. Because of the relative isolation of the Morgan Hill Community, it is not possible to derive benefit from Truck Companies located in the vicinity of the Community – thus optimizing a regional approach to this very expensive resource as is normally desirable.

This issue provides the foundation of the recommendation that the City seek to develop a regional approach to service delivery on a regional basis in the South County. This regional basis should include the City of Morgan Hill, the City of Gilroy and the unincorporated area currently incorporated within the boundaries of the South County Fire Protection District.

Exhibit 1-26



System Performance Objectives

The design of the Morgan Hill Fire Defense and EMS system should be predicated on specific, defined performance objectives. The actual method of accomplishing these objectives may vary over time. However, the adoption of specific community standards and expectations serves as the framework for a coordinated and systematic approach to community planning and ultimately enhanced public safety.

Fire and EMS performance standards are essentially of two types: 1) Response based and, 2) System Based Performance.

Response Based Performance

The most widely recognized measure of system performance is response time. However, even this most widely used measure has different meanings in different contexts, therefore an agreed upon definition of response time is essential.

For purposes of this plan, response time is defined as the total time elapsed from the receipt of the call at a 911 Public Safety Answering Point (PSAP) until the arrival of public safety personnel at the location dispatched to. The current level of performance of the system is reflected in Exhibit 1-13 of this report.

A considerable amount of background has been provided on the reasoning behind the traditional response time standards that have been established in the United States. Generally speaking, the period of between 4 and 8 minutes is critical in both severe medical emergencies and interior structure fires. The current system is able to deliver a 5-minute total response time in 59% of incidents. Based upon the needs identified and the likely ability of the current infrastructure to support a given level of response the following response based performance goal is recommended for adoption:

RB-1: Provide a total travel time of 5-minutes and a Total Response Time of 7 minutes to 90% of all emergency responses.

Additionally, this report has made extensive reference to the growing trend in the environment which necessitates a minimum of 4-people to effectively carry out fire suppression efforts in interior fires. This is occurring in an environment where structure

fires are becoming less frequent and often of a smaller scale than has been seen in the past. Nonetheless, the ability to deliver sufficient staffing – either for a fire or for the treatment and movement of the critically ill or injured – is essential. Therefore, it is recommended that the City adopt the following response based goal:

RB-2: Provide a minimum of 4-people on the scene of interior structure fires within a travel time of 8 minutes 80% of the time and within 10 minutes 95% of the time.

Equally important is the ability to deliver sufficient pumping capacity and staffing to deliver the amount of water (fire flow) sufficient to extinguish a fire in a building. Some consideration must be given to the ability of the system to deliver, at the very least, a first alarm complement of personnel and equipment that is equal to the fire flow demand of the structure involved in the fire.

Fire flow can be mitigated in several ways including construction techniques, building design and installation of fire sprinklers among other things. It is in this performance goal that the "crosswalk" occurs between the deployment of fire suppression resources and system design issues.

It is recommended that the City adopt the following response based performance goal with respect to fire flow delivery:

RB-3: Provide sufficient staffing and pumping capacity to meet the theoretical fire flow of a structure fire within an average travel time of 15 minutes.

System Based Performance

In order for the fire defense and EMS system to be appropriately measured, certain results- or performance based measures must be considered. Prompt response times and adequate staffing must be measured against the impact that the investment in such resources is actually having. Evaluating this impact is the purpose of the System Based Performance Measures. For purposes of discussion, the proposed performance

measure are divided into categories; Fire Suppression Operations, Fire Prevention Measures, EMS, and Continuous Improvement Efforts.

Fire Suppression Operations

SB-1: Contain Fire to the Room or area of origin 90% of the time.

SB-2: Limit the number of firefighter injuries to less than .47/100 calls for service.

Fire Prevention/Loss Management

SB-3: Limit the number of Commercial Fires per year to 5/1,000 Inspectable Occupancies

Emergency Medical Services

SB-4: Obtain Return of Spontaneous Circulation in 8% of non-traumatic, cardiac arrest patients experienced in the field.

SB-5: 90% of all applicable Trauma Patients arrive at an appropriate Trauma Center within 50 minutes of dispatch.

SB-6: 65% of all applicable EMS calls receive appropriate by-stander intervention prior to arrival of public safety personnel.

Customer Service and Satisfaction

SB-7: Receive 95% Good or Excellent rating in Responses to solicited Customer feedback.

Planning Considerations and Recommendations

This section reports the evaluation of the analysis of the data presented thus far in the report. From this, planning considerations are identified and optimal plan goals are identified. Recommendations are then presented that outline expectations of future service needs and the most appropriate systems and structures that can be utilized to achieve them.

Planning Considerations and Assumptions

Based upon evaluation of the data that reports the operations, costs and services levels afforded the City of Morgan Hill, and input from the Master Plan Task Force, the following planning assumptions were developed and provide the optimal approaches for achieving the identified performance standards at an acceptable community cost.

1. The Morgan Hill Fire Defense system will ultimately be served by a minimum of 3 fire station facilities.
2. Fire and EMS services will continue to be provided through a contract or joint powers arrangement.
3. Minimum staffing for first line apparatus will be twelve (12) suppression personnel with an additional supervisor (Battalion Chief) for a total of thirteen (13) people within the City.
4. The City of Morgan Hill will seek to enhance and improve cooperative, regional efforts in fire service delivery system and methods.
5. The need for enhanced Truck Company services will increase during the planning period.
6. The City will re-invest in Fire Station facility infra-structure and re-establish city ownership/equity in facilities.
7. The City will identify and adopt specific performance measures for fire protection and EMS services.

a. Specifically, the City will seek to obtain and maintain current service types and levels at a specified cost basis.

b. The fire defense and EMS systems will have integrated and monitored quality improvement systems incorporated into them.

8. The City fire defense and EMS system will rely to an increasing extent on citizen involvement and self-help and will require additional investment and funding of such initiatives.

   a. Increase pro-active steps in identified Wildland Interface Areas, including systematic weed abatement, development standards and control efforts.

   b. Consider the formation of special districts or other revenue enhancement mechanisms for areas of special risk (i.e. High Hazard Wildland Interface areas, areas of public assembly, etc.)

   c. Develop residential educational, fire prevention and community assistance programs for fire safety and wellness programs.

   d. Conduct a comprehensive evaluation of existing fire prevention codes, ordinances and regulations, and enhance the ability to interpret and enforce their provisions effectively.

   e. Evaluate the potential impacts and implement as appropriate CPR, Automatic External Defibrillation and other self help activities related to EMS service delivery.

9. The City will continue and enhance it's Emergency Management Planning activities in a manner consistent with enhanced citizen involvement and self help.

10. The City will continue to provide ALS First Responder Services within it's boundaries.

11. The City will continue its reliance on fire protection related codes and ordinances as an integral part of it's fire defense system. Adoption and

maintenance of sprinkler protection and defensible space ordinances will continue to play an essential role in Morgan Hill's fire defense system.

A more comprehensive discussion and/or analysis of these issues are provided below and on the following pages.

The Morgan Hill Fire Defense system will ultimately be served by a minimum of 3 fire station facilities.

A comprehensive review of fire station locations was conducted and a multitude of configurations were considered as were staffing levels and models. The results of this analysis revealed that the present location of the existing fire stations is very close to optimal. The one potential area of improvement is the access that results from the current circulation patterns from the existing El Toro Station (Station 12) to the Industrial Park.

In interviews with the Santa Clara County Fire Department, it was determined that there is some consideration being given to attempt to relocate that station to an area on the border of the Industrial Park development. If this were to occur, the station would be better positioned to serve the industrial areas and the high frequency of calls along the freeway (101) corridor. There would be a decrement in response time performance to the hillside areas along Llagas. While the call volume to this area is relatively low, the high hazard Wildland Interface area present there would present a potential significant consideration.

Regardless of this potential relocation, the City is well served with a three station configuration. Approximately 30% of the City is served, on a first response basis , by the South County Fire Protection District from the California Department o f Forestry and Fire Protection at 18300 Old Monterey. This occurs through an automatic aid agreement with the District. While there is not total equality of in the number of responses, this system has historically worked well, because of a large, unincorporated area within the South County Fire District that is adjacent to the City of Morgan Hill and served more readily by Morgan Hill units (i.e. Santa Clara County Fire Department).

Fire and EMS services will continue to be provided through a contract or joint powers arrangement.

From a planning perspective, it would be advantageous to the City of Morgan Hill to attempt to achieve enhanced cooperative efforts to provide services over the entire South County area. An optimum situation, both respect to total community cost and operational efficiency, would be a single agency providing services across the entire south county area. At a minimum, the City would benefit from enhanced cooperative efforts between the multiple agencies providing fire protection services in the South County sub-region. The advantages of a single entity and/or regional cooperation are many and are summarized below:

1. Greater economies of scale for support services, including communications
2. Enhanced effectiveness of communications.
3. Reduced expense for redundant supervisory capacity.
4. Ability to amortize costs of specialized services (i.e. Truck Companies and Heavy Rescue) over a larger area.
5. Overall greater coordination of development standards and planning processes.
6. More equal enforcement of related codes and ordinances to all citizens.
7. Potential synergy created by current investments of the various agencies combined into a one funding source.

Of the above listed advantages, numbers 1 through 4 are clearly achievable in the absence of a single provider or over-riding governance structure. In other words, a contractual mechanism growing out of a regional planning effort could very easily achieve a common dispatch/communications mechanism, an agreement on specialized services provision (i.e. Truck Companies, Hazardous Materials Management, Technical Rescue, etc.), and shared supervisory responsibility.

Coordination of development standards and inspection services may be somewhat more problematic to implement, however it is not unforeseeable that regional agreement on defensible space standards could be adopted by the County, the City of Morgan Hill

and neighboring jurisdictions. In any event, such cooperative efforts should be a major force in the development of minimum standards for service provision under a competitive bid processes for the fire service contract upon the expiration of the current contract.

Operational Impacts

The operational impacts of these types of structural changes are predicted to be immediate and significant. The ability to provide seamless dispatch services alone can be predicted to decrease overall response times a minimum of 30 seconds in the southern area of the City currently served by the South County Fire Protection District. This is primarily due to the "re-dispatching" of units once notification is received by the CDF Unit Communications Center of a need for resources.

As identified in the section of this plan on service demand projections, while the City of Morgan Hill has established well defined growth management strategies, development occurring in the southern areas of the City of San Jose will have significant impacts on traffic and transportation with the planning horizon. This, combined with the dramatic increase in commercial/industrial development will likely create an increased need for Truck Company and Rescue/Extrication services within the region. Not only is demand likely to increase, increased traffic impacts make the reliance on resources located to the north of the City more and more problematic and response times will likely continue to increase. Therefore, the provision of these two needs within the City of Morgan Hill, or the south county region, will become necessary within the planning horizon. The ability to plan for these services on a regional or sub-regional basis will reduce the overall community costs to all concerned.

Minimum staffing for first line apparatus will be a total of 12 People within the City of Morgan Hill[11]

The staffing patterns of the Morgan Hill fire defense system will be impacted both by national standards (i.e. NFPA 1710) and local standards of service delivery (currently both the City of San Jose and the City of Gilroy deploy four person companies). Multiple staffing configurations have been considered during the planning process.

[11] Minimum on-duty staffing is recommended to actually be 13 – including one Battalion Chief level supervisor.

In developing fire station location and staffing options, the comments and direction of the Task Force was utilized in formulating modeling approaches. Each of these models must be based on certain assumptions from which various models are constructed. The discussion with the Task Force primarily focused on the profile of the existing fire defense infrastructure and on potential performance measures, both of the existing system and future system designs.

The assumptions which guided the construction of this set of models are identified as follows:

1. Speed of initial response should be a primary factor in system design.[12]

2. Travel times should remain consistent with, or improve upon those found in the current system.

3. Specific consideration should be given to the impacts of 2-in/2-Out requirements (Specifically the objective of providing 4 personnel on-scene within an 8-minute travel time)

4. The primary objective of the operational fire defense force should be containment of unwanted fire to the level of spread found upon arrival of fire suppression forces and in no case, beyond the building of origin.

It is important to note, however, that the existing level of service does not appear to generate significant, on-going concern within the community. Generally speaking the community appears to be satisfied with response times and there is not an on-going, generalized perception that the system is providing service at a level below that expected or anticipated by the community. Alterations to the current service level are based upon a desire to enhance current service levels – specifically as it relates to the "depth of response", the desire to provide additional staffing for the safety of fire suppression personnel, the enhancement of service efficiency, and the desire to provide staffing levels anticipated to be commonly found within the region (or sub-regional area) during the planning period.

[12] This assumption is based primarily on the growing role that EMS plays in the service mix provided by the Fire Department. Additionally, because of the geography of the City of Morgan Hill, it is likely that "depth of response" (i.e. the ability to deliver large fire flows from multiple companies) will remain problematic throughout the planning horizon.

Cost Impacts of Twelve-Person Staffing

Based upon the earlier analysis provided of the current cost structure, it is estimated that the Salary, Wage and Benefit (SWB) Cost needed to support a four person station is approximately $1,455,000/year. Under the current cost structure, approximately 15% of total SWB Costs are added for "Services and Supplies" and another 11% is added for "indirect expense. Utilizing this model would result in an overall expense to the City of approximately $1,833,300/station. This results in a total cost for a three station model of $5,499,900 or $3,666,600 for a two station configuration.

A comparison to the overall per station cost of the comparison agencies in the group indicate that that the current median cost is approximately $1.6 million/station. The current cost model applied to a four-person station and measured on a per-station basis is approximately 14% higher that the cost structure of the comparison cities.

Generalized Conclusions of Modeling Experience

Based upon these assumptions, multiple scenarios were developed and modeled utilizing the Fire Station Location and Mapping Environment (FLAME) Software solution. There were several overall conclusions that can be drawn from the computer modeling of system designs. These conclusions, or set of facts that apply to all the models, are summarized below:

1. In order to meet an objective of 4 people the scene of an incident with an eight minute travel time, utilizing conventional staffing configurations, a minimum of 12-people must be on-duty (in various configurations) throughout the City.

2. Given a 3-Station configuration, the current station sites approximate optimal placement for fire station location.

3. The provision of Truck Services, on a first alarm basis remains problematic at the staffing levels considered achievable.[13]

4. Enhancement of existing 2-Person minimum response capability at South County to a guaranteed minimum of 3-person staffing is necessary in all planning options (except Option 5).

5. The maintenance and enhancement of regional cooperation in service delivery should be adopted as an underlying public policy decision.[14]

On the following page is a matrix that describes the options considered. Appendix "A" to this plan contains FLAME, computer based models that illustrate the first-in response and 2-In/2-Out response characteristics of the scenarios modeled. These models and options must be viewed in the context of discussions surrounding built-in protection and the impacts of sprinklers on both theoretical and practical fire flow delivery.

The following data provides a comparison of the models with reference to the service enhancement potentials that each one represents. Specifically, the ability of each model to enhance first response travel time and the ability to deliver 4 people on the scene of an incident within an 8 minute travel time.

[13] One Scenario (Scenario #4) placed 5 people at Station 12 allowing a 2-person staffing level on the Truck. This level of staffing has a minimal impact on the ability of the company to actually provide truck-type, suppression and rescue services.

[14] It is this assumption and recommendation that serves as the foundation for only counting as an incremental expense, additional staffing at the South County Fire Station.

Exhibit 2-1
Summary of System Design Options Considered by Task Force

Option Scenario	Estimate Cost of Option	Travel Time Enhancement over existing System	Percentage of Street Segments with 2-in/2-out Capability
Scenario 1 - Existing Infrastructure. Change in Staffing to 4-Person Companies (i.e. 4 persons at each station) ***(3 Stations X 4 Firefighters = Staffing of 12***	$1,390.744	0%	94%
Scenario 2 - Relocation and Addition of Stations. Station 12 to the vicinity of 650 Llagas Station 13 to the vicinity of 3000 East Dunne. New Station in the vicinity of Half Street. All Stations are modeled at 3 person companies ***(4 Stations X 3 Firefighters = Staffing of 12)***	$1,390.744 + extreme capital costs	~8%	59%
Scenario 3 - Enhanced staffing to existing infrastructure to include 5 People at Station 12 (Engine Staffed with 3/Truck with 2) 5 People at station 13 (Engine staffed with 3 and Patrol or Rescue with 2) and 4 people staffed at South County Station. ***(3 Stations w/ variable staffing totaling 14)***	$2,152,910	0%	92%
Scenario 4 – Enhance to 3 person Staffing at South County. Enhance staffing to 5 at 12's (Engine 3/Truck 2) and 4 person staffing at 13's.	$1,390,744	0%	67%

(3 Stations w/ variable staffing totaling 12)			
Scenario 5 - 5 Mini-Station Locations. Each with 2-Person Companies. Locations are portrayed on Page "~" in Appendix ***(5 Stations X 2 Firefighters = Staffing of 10)***	$695,372 +Extreme capital costs	15%	69%
Scenario 6 - Additional station near middle of city to provide staffing enhancement throughout and additional ALS Capacity. ***(4 Stations X 3 Firefighters = Staffing of 12)***	$1,390,744 + significant capital costs	32%	92%
Scenario 7 – Additional station near middle of city and an increase in staffing to a 4 – Firefighters/Company. Utilize Quint as E12 for aerial device availability. ***(4 Stations X 4 Firefighters = Staffing of 16)***	$2,369,372 + significant capital costs	32%	94%

An examination of the above table reveals several facts:

1. Scenario 5 presents the least on-going, operational expense and also provides the highest improvement in first response travel time. This option also provides a slight improvement to existing 2-In/2-Out coverage issues. If deployed in a conventional way (i.e. static deployment from fire stations) this option would provide substantial capital costs. The deployment mechanism would be inconsistent with existing labor agreements with the current contract holder.

2. The highest level of 2-In/2-Out coverage is provided by utilizing the current station infrastructure and providing 4 – person staffing at each station. This yields a service level that delivers 4 people to approximately 94% of the area street segments within 8 minute travel time. It does not improve first response travel time over the

existing system, although it does provide higher staffing levels at the same response intervals.

Scenario Options 6 and 7 – which provide for an additional station in the mid-city area appear to be a viable solutions to balancing the desire to enhance response times with an increased depth of response and ability to provide 4 people on the scene of an emergency more quickly. Because much of the mid-city area is already within the 5 minute travel times of either Station 12 or South County Station 1 – it is hard to absolutely quantify increase in service delivery. However, if initial response time is utilized as a criteria of service level, approximately 27% of all calls received will be closer to a newly constructed station near the intersection of Dunne and Butterfield. A fire station and appropriate resources at this station provide the ability to reach the southeast areas of the city within 8 minute travel time and produces city wide coverage at this level of approximately 96%. One appreciable advantage of this option is that the high demand area of the center city will experience lower response times and have a more redundant system available to handle simultaneous calls for service. Additionally, the presence of a station in the southern areas of the City will produce a greater effectiveness in the management and implementation of ancillary services such as inspections and hydrant maintenance.

Exhibit 2-2
Staffing Models and Options
City of Morgan Hill Master Plan Update

Scenario	Description	*Staffing Level/Day*	Advantages	Disadvantages
1	Existing Infrastructure. Change in Staffing to 4-Person Companies (i.e. 4 persons at each station)	12	▪ Provides comprehensive 2-In/2-Out Coverage ▪ Provides greater effectiveness of 1st-in Company	▪ Does not enhance "depth of response." ▪ Expense ▪ Does not enhance travel times to any area of the City.
1A	Existing Infrastructure. Provide additional staffing level of 1 person per day at South County Station	9	▪ Provides Uniform Staffing Levels throughout city.	▪ Does not significantly enhance 2-In/2-Out or response time abilities.
2	Relocation and Addition of Stations. Station 12 to the vicinity of 650 Llagas Station 13 to the vicinity of 300 East Dunne New Station in the vicinity of Half Street. All Stations are modeled at 3 person companies	12	▪ Enhances response times to areas on the periphery of City. ▪ Provides greater depth of response and enhanced flexibility of the system to respond. ▪ 2-in/2-out coverage is enhanced from current system, but not as effective as 4-person coverage of Scenario 1	▪ Adds ongoing and capital expenses to cost structure ▪ Small part of central district receives small decrement of service.
3	Enhanced staffing to existing infrastructure to include 5 People at Station 12 (Engine Staffed with 3/Truck with 2) 5 People at station 13 (Engine staffed with 3 and Patrol or Rescue with 2) and 4 people staffed at South County Station.	14	▪ Provides small measure of staffing for Truck Company. ▪ Provides for flexibility of response ▪ 2-in/2-out coverage is comprehensive. ▪ Ability to provide alternative deployment from both 12 and 13 to the hill areas.	▪ Expense